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Amendment #1
to the
Final Site Specific Health and Safety Plan
for the
Source Removal at the Mound Site IHSS 113
9-23-97

On September 3, 1997, three drums believed to contain radiologically contaminated soil below Tier II limits were emptied into the Mound Site excavation. The decision to place the soil into the excavation was based on original gamma spectroscopy analyses of samples obtained from the drums.

After emptying the three drums of soil into the excavation and backfilling of approximately 750 cubic yards of treated Mound Site soil into the excavation, it was found that the original gamma spectroscopy analyses were in error. After the errors were discovered, the samples were analyzed a second time onsite and a third time by an independent off site laboratory. The results from the second and third analyses revealed radiological contamination of the soil which exceeded Tier I limits and thus require removal from the excavation.

Although work activities required to excavate the radiologically contaminated soil are similar to those implemented during the original Mound Site source removal, significant differences exist which would require a near complete revision to the Health and Safety Plan (HASP). Rather than develop a complete revision, it was decided to amend the HASP. This amendment addresses all areas of the original HASP and either references it or states the new requirements. In addition an Activity Hazard Analysis has been prepared and is attached.

Section 1 - All information within section 1 is applicable with the exception that the work is not mentioned in the Auditable Safety Analysis.

Section 2 - Project Personnel Responsibilities

Project personnel responsibilities remain the same. Figure 2.1 has been revised and is attached.

Section 3 - Site Information

Site information remains the same except for the reason why we are excavating the Mound Site which is

mentioned above

Section 4 - Scope of Work

The scope of work involves the excavation of approximately 650 cubic yards of treated Mound Site and clean natural soil to gain access to the radiologically contaminated soil. Because the contaminated soil is at approximately nine feet below grade, excavation down to a depth of six feet will be conducted as a construction activity under OSHA 29 CFR 1926. Once at six feet below grade, work will be conducted under the stipulations of DOE Title 10 CFR 835 - "Occupational Radiation Protection" and OSHA Title 29 CFR 1926.65 - "Hazardous Waste Operations and Emergency Response". Upon reaching six feet, excavation will be conducted in six inch lifts. Field Instrument for the Detection of Low Energy Radiation (FIDLER) readings will be obtained on each six inch lift to find the contaminated soil. Hand shovels will also be used to locate and recover the contaminated soil which will be appropriately packaged and shipped offsite for disposal. Removal of contaminated soil will be verified by the use of the FIDLER and sampling of the bottom of the excavation. After confirmation that all contaminated soil is removed, the excavation will be backfilled.

Section 5 - Hazard Assessment

This section has significant differences because the VOCs were removed during the low temperature thermal desorption phase of the project and the radiological contamination in the soil is higher. The highest level of Uranium-238 in the soil is 1150 pCi/g (see attached analytical). The biological and physical hazards remain the same.

Section 6 - General Health and Safety Requirements

Section 6 remains the same with the exception of the training requirements which do not include Respirator Indoctrination, Respirator Fit Chamber Certification, Supplied Air Respirator Indoctrination, and Lock Out/Tag Out Briefing.

Section 7 - Site Specific Health and Safety Requirements

All sections remain the same with the exception of the following:

- Work zones will be the same as those listed, however, the CRZ/RBA and EZ/SCA will not be established until the excavation is six feet deep.
- PPE will be as follows:
 - Excavation down to six feet - Safety shoes and safety glasses with side shields. Hard hats and reflective vests will be worn by ground personnel working around heavy equipment.
 - Excavation beyond six feet - Safety shoes, safety glasses with side shields, Tyvek®, inner surgeon

gloves, outer nitrile gloves, and rubber booties Hard hats and reflective vests will be worn by ground personnel within the EZ/SCA boundary

- Radiological monitoring requirements will remain the same except FIDLER readings which are not required until the excavation reaches six feet in depth Once at six feet, FIDLER readings will be taken as necessary (minimum of six inch lifts) until the contaminated soil is uncovered, excavated, and packaged
- Industrial Hygiene monitoring will be the same except that a Thermo Environmental Inc , Model 580B, Organic Vapor Monitor will be used as a precaution only Note Should VOCs be detected in the breathing zone at levels greater than background, project activities will pause and the potential hazard will be assessed
- No personal integrated sampling for volatile organic compounds will be conducted
- Due to the absence of chemically contaminated soil a boot wash will not be required

Section 8 - Emergency Response Plan

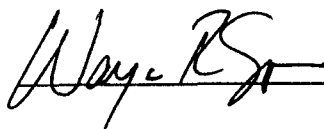
All sections remain the same except spills which are considered incidental Spills of gasoline and diesel, depending on an evaluation by the Site Safety Officer, may require an emergency response

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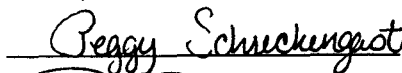
Signature

Date

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 9-24-97

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 9-24-97

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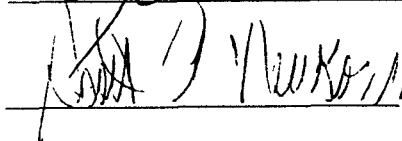
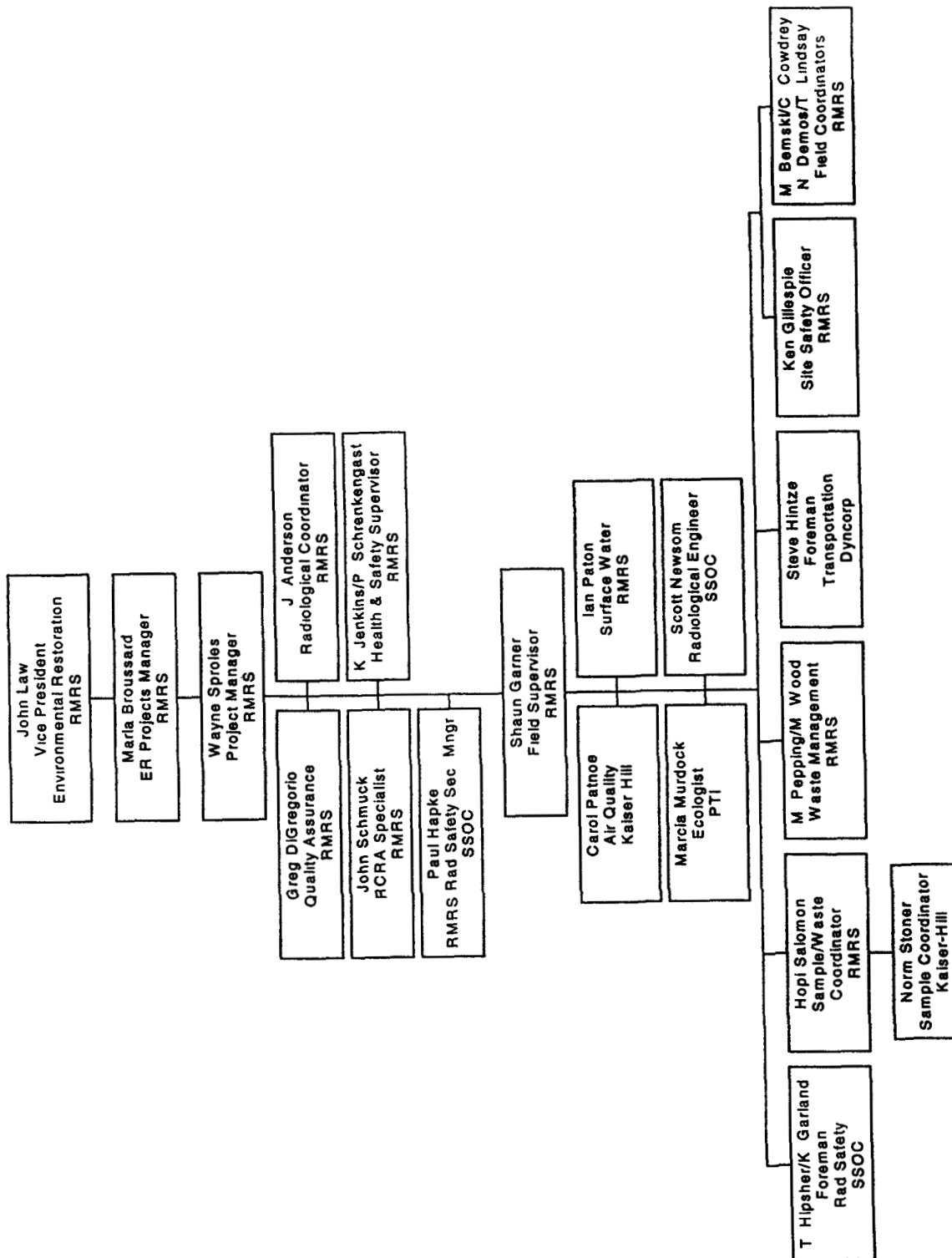
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Figure 2 1
Project Organization



T-3/T-4 Hotspot Soil Radioisotopic Data

The following four 250 ml samples were obtained from three drums of soil generated during the T-3/T-4 hotspot clean up. gamma spectroscopy was performed in order to characterize the soil

Sample No Drum No	Sept 11, 1997 First Count ¹ pCi/g U-238	Sept 13, 1997 Second Count ² pCi/g U-238	Sept. 15, 1997 Third Count pCi/g U-238	Average Activity pCi/g U-238	Net Weight grams	Count Time seconds	Independent Laboratory Data Sept. 18, 1997 Results ⁴ pCi/g Th-234 (U-238)
DB00034RM D88422	179	310	112 8	200 6	299 64	1800	382
DB00035RM D88422A	77 4	157	94 3	109 6	310 85	1800	286
DB00036RM D88396	363	672	369 ³	468	390 40	1800	1150
DB00037RM D88421	115	150	138	134 3	320 85	1800	323
							535 25 ⁵ / 602 33 ⁶

NOTES

- 1 Spectrum originally collected on June 5, 6, and 9, 1997 Reanalysis of spectrum completed on date stated
- 2 Measurement taken at the side of the container exhibiting the highest count rate
- 3 Measurement performed on September 13, 1997
- 4 Laboratory results are summarized in this column Original samples were dried and homogenized A 100g aliquot was removed from each sample for counting
- 5 535 25 pCi/g is the average of all four samples results as reported by the laboratory
- 6 602 33 pCi/g is the average of the three drums The average of the duplicate samples was used for drum D88422

REFERENCE RECA SUBSURFACE SOIL ACTION LEVELS FOR U-238

Tier I Open Space	586 pCi/g
Tier I Industrial	506 pCi/g
Tier II Future Resident	103 pCi/g

**MOUND SITE SOURCE REMOVAL
EXCAVATION OF HOT SPOT**

Activity Hazard Analysis

9-23-97

Activity	Hazard	Preventative Measures
All site activities	General work hazards	Personnel will wear steel toed shoes, safety glasses with side shields, hard hats, reflective vests, and hearing protection as applicable in the construction area, CRZ/RBA, and EZ/SCA
	Heat stress	Heat stress monitoring will be conducted in regards to work load and PPE worn
	Cold stress	Cold stress monitoring will be conducted. Proper clothing will be available to all personnel and administrative controls will be adhered to
	Noise	Noise monitoring will be conducted Where necessary personnel will wear hearing protection In addition, all personnel will participate in the RFETS Hearing Conservation Program if necessary
Traversing the site	Slip, trips, falls	Care will be taken when traversing the site especially when wearing PPE and carrying equipment All trip hazards will be immediately removed or marked when identified
Lifting equipment and materials	Back injury	Proper lifting techniques will be used and heavy equipment, where feasible, will be utilized to move heavy loads
Handling equipment and materials	Pinch points and sharp edges	Care will be taken when pinch points and sharp edges exist and heavy duty leather work gloves will be worn

Activity	Hazard	Preventative Measures
Using hand tools	Hand tools in unsafe operating condition	Hand tools will be inspected by the user prior to each use
	Improper use of hand tools	Hand tools will be utilized for their intended use and operated in accordance with HSP-12 10 Guards will be in place and no modifications will be made
	Electrical shock	Portable power tools will be plugged into a GFCI protected outlet and will be UL listed and double insulated Cords will be inspected by the user and protected from unnecessary damage Any tool whose cord shows signs of damage or deterioration will be immediately removed from service
Use of generators	Electrical shock	Extension cords will be intended for outdoor use, inspected by the user, and protected from unnecessary damage Any extension cords which show signs of damage or deterioration will be immediately removed from service
	Electrical shock	Cords will be plugged into a GFCI protected outlet and the generator will be properly grounded The GFCI will be tested by the user daily prior to the beginning of each shift
	Fire	At a minimum, a 10 lb. ABC fire extinguisher will be located in the work area and next to the generator All refueling will be conducted at the beginning of the shift when the generators are cool
	Use of gasoline	Follow recommendations on MSDS (see Appendix C)

Activity	Hazard	Preventative Measures
Trackhoe and front end loader operations	Trackhoe or front end loader in poor operating condition	The trackhoe and front end loader will be inspected prior to entering RFETS. The operator will inspect and document the trackhoe and front end loader prior to the beginning of each shift.
	Improper operation of the trackhoe or front end loader	Operators will be properly trained in the use and limitations of the trackhoe and front end loader.
	Ground personnel being struck with trackhoe, front end loader, or falling loads	Ground personnel will wear orange vests, stay at least 20' away from the trackhoe and front end loader, and maintain line of sight with the operator.
	Other equipment being struck with trackhoe or front end loader	Trackhoe and front end loader operations will be conducted in a deliberate safe manner. A spotter will be required when backing the trackhoe and front end loader during non-routine operations.
Excavating soil on six inch lifts at depths greater than six feet	Inhalation of volatile organic compounds	Although VOCs are not anticipated, real time air monitoring will be conducted at the soil surface and in the breathing zone during all excavation activities regardless of depth.
	Skin exposure to radionuclides	Personnel in the EZ/SCA will wear Modified Level D PPE (Tyvek®, rubber booties, inner surgeon gloves, and outer nitrile gloves) and limit contact with contaminated soil. Note: This PPE will be worn when the excavation reaches six feet or greater in depth.

Activity	Hazard	Preventative Measures
Excavating soil down to six feet in depth and on six inch lifts at depths greater than six feet (cont)	Inhalation of radionuclides	Continuous high volume radiological air sampling will be conducted in the work area when the excavation reaches six feet in depth CRZ/RBA and support zone work controls will be based on perimeter low volume radiological air sampling which will begin when the excavation reaches six feet in depth
Working around open trench	Slips, trips, falls into trench	Personnel will stay a minimum of six feet away from the edge of the trench when not sloped at 1 1 5 Personnel closer than six feet must wear a full body harness and lifeline attached to an approved anchorage point
	Sloughing of trench walls	The trench will be inspected prior to and during each shift Entry into the excavation will require inspection and approval by a Kaiser-Hill Excavation Specialist
	Equipment falling into trench	All equipment, except the excavator, will be kept a minimum of six feet away from the edge of the trench
Obtaining FIDLER readings at the trackhoe bucket or in the excavation.	Ground personnel being struck with trackhoe	Prior to the RCT approaching the bucket or entering the current excavation area, the operator will set the bucket on the ground, disengage the hydraulic system, set the parking brake, and give a hand signal indicating that the RCT may approach
Spraying water for dust control and pumping decontamination or incidental water into the holding tanks or into tanker trucks	Pump malfunction or hose rupture	Pumps and hoses will be inspected by the user prior to use The hoses will be protected from unnecessary damage The discharge end of the incidental water hose will be submerged in the holding tank Tankers will be filled in accordance with their safety guidelines

Approved

Signature

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